

# Owner's Manual



**Aprilaire®**  
**ZONED COMFORT CONTROL**

## Preface

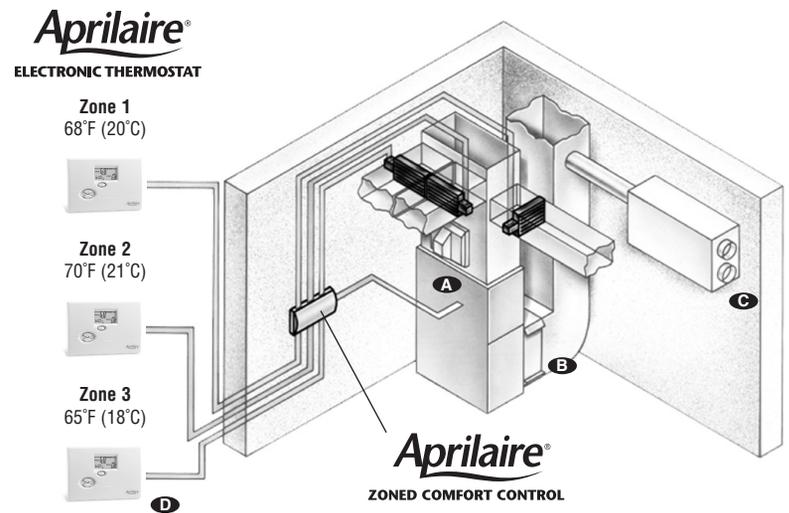
Thank you for purchasing a new Aprilaire® Zoned Comfort Control System. We sincerely appreciate your business and are pleased to add your name to our growing list of customers. With this purchase, you have invested in the highest quality equipment currently available.

Please be assured that in addition to product quality, we are committed to product performance and complete customer satisfaction. It should be of equal significance to you that we have a network of dealers throughout North America that sell, install, and service our products to help back up our commitment to quality and performance.

## Overview

The Aprilaire Zoned Comfort Control System has been designed to increase comfort in your home and reduce energy costs. It's able to do this because it solves the problem caused by various areas of the home gaining and losing heat at different rates. Unlike conventional heating and air conditioning systems, Zoned Comfort Control knows, at any given time, which areas (zones) of your home require conditioned air. With this information, the Zoned Comfort Control automatically directs the air to the zones that require it. Because of this, it will not only increase the comfort level throughout your home, but by setting back the temperature in unoccupied zones it will also allow you to reduce your energy costs.

The components that make up the Aprilaire Zoned Comfort Control System are the following: thermostats, a Control Panel, air control dampers and heating and cooling equipment, as shown in the illustration on the following page. The Control Panel is typically located on an inside wall near your heating and air conditioning equipment. The dampers are located inside your air ducts in such a way that each zone can be independently controlled. Thermostats, placed in each zone, are directly connected to the Control Panel.



The above illustration shows a typical three zone Aprilaire Zoned Comfort Control system.

For enhanced health, comfort and efficiency, Aprilaire offers an entire line of indoor air quality solutions. To learn all about Fresh Ideas for Indoor Air, visit us at [www.aprilaire.com](http://www.aprilaire.com).

(A)

### **AUTOMATIC HUMIDIFIER**

Deliver optimum humidity throughout your home to eliminate dry nose and throat and itchy skin and to reduce the chance of upper-respiratory problems

(B)

### **HIGH EFFICIENCY AIR CLEANER**

Deliver the cleanest and healthiest air to improve the health of your family and to protect the performance of your heating/cooling equipment

(C)

### **ENERGY RECOVERY VENTILATOR**

Ensure a supply of clean and fresh air into your home to make it more healthy, comfortable and energy efficient

(D)

### **ELECTRONIC THERMOSTAT**

Combine easy programming, pinpoint accuracy and digital controls to provide you with the ultimate in both comfort and energy savings

## Model 6404

The Model 6404 is designed to work with your heating and cooling system, whether it is a furnace and air conditioner type system or a heat pump. This model can handle three stages of heat (two stage compressor, one auxiliary heat) and two stages of cool. The 6404 itself will control 2, 3 or 4 zones. However, the system can have as many as 12 zones by adding expansion panels.

### Basic Operation

Your Aprilaire Zoned Comfort Control System will allow you to increase your comfort by directing conditioned air to separate areas (zones) based on each zone's thermostat setting. To operate this system, just set or program each zone's thermostat to your desired comfort set points. When there is a heating or cooling call from any zone, the appropriate heating or cooling equipment will be turned on. The dampers to zones not requiring heating or cooling will close and the conditioned air will be directed to the calling zone (s) until the thermostat is satisfied.

There are two possible control modes that your Aprilaire Zoned Comfort Control System can be programmed for. Your contractor programs the control panel at the time of installation to either "any zone sets mode" or "zone 1 sets mode". When configured for "any zone sets mode" operation each thermostat can control the equipment's changeover from heating to cooling or vice versa. When configured for, "zone 1 sets mode", only the zone 1 thermostat can effect the equipment's changeover. It is important to know which control strategy has been designed into your system, since it will affect its operation. A typical application for the "zone 1 sets mode" configuration would be a restaurant where management doesn't want employees or customers to have the ability to turn on cooling in the middle of winter from the thermostat located in the seating area of the restaurant.

If configured to any "zone sets mode" and one zone is calling for heat, while another zone is calling for cooling during the minimum off time between cycles, the heat call will be satisfied first. After the heat call is satisfied, the cooling call will be satisfied. There is also a 20 minute change over feature which provides a maximum call time of 20 minutes if opposing calls exist. The heating and cooling equipment will not operate at the same time.

Your zone control system is designed to direct conditioned air only to the rooms served by that zone's thermostat. However, due to the open design of today's homes, it may not be possible to maintain drastic temperature differences between zones. Closing interior doors is a good way to reduce the air exchange between zones and increase the temperature difference between them.

The following sections describe how to make Heating, Cooling, and Emergency Heat calls.

### **Heating Operation (All Models of Equipment)**

To start heating:

1. Set your thermostat to the Heat mode. Depending on the thermostat, this is accomplished by either manually moving a switch to the Heat position or digitally selecting Heat mode with a push button. Consult your thermostat Owner's Manual for details.
2. Adjust the thermostat set point to a temperature higher than the displayed room temperature so that a Heat call is initiated. Again, consult your thermostat Owner's Manual for details on how to do this properly.

An LED labeled 'Heating', on the zone panel enclosure will indicate if the board is making a call for heat. If the equipment does not come on right away it may be due to the minimum-off time delay. Four minutes must elapse after the last heating cycle before it can come on again. This built in feature ensures that the heating equipment does not cycle too frequently, shortening the life of the equipment.

### **Cooling Operation (All Models of Equipment)**

1. Set your thermostat to the Cool mode. Depending on the thermostat, this is accomplished by either manually moving a switch to the Cool position or digitally selecting Cool mode with a push button. Consult your thermostat Owner's Manual for details.
2. Adjust the thermostat set point to a temperature lower than the displayed room temperature so that a Cool call is initiated. Again, consult your thermostat Owner's Manual for details on how to do this properly.

An LED Labeled 'Cooling', on the zone panel enclosure will indicate if the board is making a call for cooling. If your air conditioning does not come on right away it may be due to the minimum-off time delay. Four minutes must elapse after the last air conditioner cycle before it can come on again. This built-in feature ensures that the air conditioner does not cycle too frequently, which can reduce the life of your equipment.

## **Emergency Heat Operation**

*(Heat Pump Equipment **only**)*

There are two options available for operation of Emergency Heat. The option used with your system is dependent upon the initial installation performed by your installer.

Option 1- If heat pump thermostats were installed in all zones, they are equipped with an Emergency Heat setting that can initiate the emergency heat mode. This is accomplished by moving the thermostat mode selector switch or push button until the Emergency Heat mode is chosen. Then, by placing the thermostat's set point above the current temperature, Emergency Heat will energize until the thermostat is satisfied. If any other zone should call for heat during the Emergency Heat call, it too will be satisfied by the Emergency Heat source.

Option 2- If Heat/Cool (non heat pump) thermostats were installed in all zones, emergency heat can only be accessed by setting the Emergency Heat switch, located on the Control Panel, to the emergency heat position. Then, by placing any thermostat's set point above the current temperature while in the heat mode, Emergency Heat will energize until the thermostat is satisfied. The accompanying 'E-Heat' LED on the control panel enclosure signifies you are in Emergency Heat mode.

With this option the system will stay in the emergency heat mode until this switch is turned to off.

**Note: Emergency Heat is generally much more expensive to operate than the Heat Pump. Use only when necessary. Your equipment may not include Emergency Heat.**

## **Damper Operation**

When the Aprilaire Zoned Comfort Control Panel receives a call and turns on the appropriate equipment, it also automatically closes the dampers that serve the non-calling zones and opens those in the calling zones. When all calls are satisfied, the Control Panel initiates a purge cycle during which time the dampers maintain their last position. After this purge cycle, all dampers open.

An LED on the zone panel enclosure will indicate if the damper for a zone is closed. The LED's labeled Z1 through Z4 Damper, indicate a closed damper in Zone 1, Zone 2, Zone 3, and Zone 4 respectively. On the expansion panel, dampers are labeled Expansion Zone 1 Damper Closed and Expansion Zone 2 Damper Closed.

## **Fan Operation**

The Aprilaire Control Panel allows you to control fan operation from any zone. Dampers in zones not calling for fan will close. If continuous fan operation is desired in all zones, the fan must be turned on at the thermostat in each zone. An LED labeled "Fan On", on the zone panel enclosure will indicate if the HVAC fan is on.

## **HUM Operation**

The Aprilaire Control Panel offers the ability to turn on a humidifier in conjunction with a humidistat. When the HUM LED is lit the humidifier may operate depending on the humidistat setting.

## **EAC Operation**

The Aprilaire Control Panel has functionality built in to turn on a properly equipped Aprilaire Electronic Air Cleaner which will be available at a later date.

## **Vacation Setting**

If leaving the home for an extended period of time, set the Zone 1 thermostat to "set back" temperature to save energy. Then move the 'Vacation' Switch, located on the Aprilaire Control Panel, to the 'On' position. The system will then be controlled by the Zone 1 thermostat only. This prevents having to adjust all thermostats twice, when leaving and upon return. It is not recommended to turn off all thermostats for extended periods in climates where freezing temperatures may occur.

## **Turning the System Off**

**In order to shut off the system and prevent the Aprilaire Control Panel from turning on your equipment, you need to set ALL of your thermostats to the OFF mode.** Depending on your thermostats, this is done manually with a slide switch on your thermostat's sub-base or with a digital push button. Consult the Owner's Manual for your particular thermostat.

## System Pressure Relief

With an Aprilaire Zoned Comfort Control System, some form of pressure relief must be designed into the system to assure proper operation and reduce the possibility of noise due to airflow. The method of pressure relief that has been designed into your system could include use of a bypass damper or the Aprilaire method of controlled pressure relief. With the controlled pressure relief method, a predetermined amount of air is allowed to pass through a closed damper. The amount of air that is passed by each damper (the bypass) is not enough to cause a noticeable temperature change in a non-calling zone, but is enough to relieve the higher system pressures.

**So, if you feel small amounts of air entering into a non-calling zone, what you are feeling is the bypass air. Remember, this bypass is normal and provides pressure relief for the system without causing a noticeable change in temperature within that zone.**

## Maintenance

Once your Aprilaire Zoned Comfort Control System is properly installed, there is no maintenance required.

If you have a problem turning on either heating or cooling, it may simply be that your zone system is set for the "Zone 1" mode of operation. To confirm the mode configuration of your zone system locate the mode dipswitch on the zone panel. The switch will be labeled "Zone 1" on "Any Zone". In the "Zone1" position, the panel is configured for Zone 1 sets mode.

## LIMITED WARRANTY

Your Research Products Corporation Aprilaire® Zoned Comfort Control System is expressly warranted for five (5) years from date of installation to be free from defects in materials or workmanship.

Research Products Corporation's exclusive obligation under this warranty shall be to supply, without charge, a replacement for any part of the zone control system which is found to be defective within such five year period and which is returned no later than thirty (30) days after said five year period by you to either your original supplier or to Research Products Corporation Madison, WI 53701, together with the model number and installation date of the unit.

THE WARRANTY SHALL NOT OBLIGATE RESEARCH PRODUCTS CORPORATION FOR ANY LABOR COSTS AND SHALL NOT APPLY TO DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY YOUR INSTALLER AS CONTRASTED TO DEFECTS IN THE ZONED COMFORT CONTROL SYSTEM ITSELF.

IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE AFORESAID FIVE YEAR PERIOD. RESEARCH PRODUCTS CORPORATION'S LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OTHER THAN DAMAGES FOR PERSONAL INJURIES, RESULTING FROM ANY BREACH OF THE AFORESAID IMPLIED WARRANTIES OR THE ABOVE LIMITED WARRANTY, IS EXPRESSLY EXCLUDED. THIS LIMITED WARRANTY IS VOID IF THIS UNIT IS NOT INSTALLED BY A QUALIFIED HEATING AND AIR CONDITIONING CONTRACTOR. IF THE LIMITED WARRANTY IS VOID DUE TO FAILURE TO USE A QUALIFIED CONTRACTOR, ALL DISCLAIMERS OF IMPLIED WARRANTIES SHALL BE EFFECTIVE UPON INSTALLATION.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incident or consequential damages, so the above exclusions or limitations may not apply to you .

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

## WARRANTY REGISTRATION

Please...Take a few minutes to visit us on-line at

**Aprilaire.com**

to register your Aprilaire product.

If you do not have on-line access, please mail a postcard with your name, address, phone number, product purchased and date of purchase to

Research Products Corporation  
P.O. BOX 1467  
Madison, WI 53701

# Thank you!

Your Warranty Registration information will not be sold or shared outside of this company.

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